## PROJECT FACT SHEET

**CONTRACT TITLE:** Design and Implementation of a CO2 Flood Utilizing Advanced Reservoir Characterization and Horizontal Injection Wells in a Shallow Shelf Carbonate Approaching Waterflood Depletion -- Class 2

**DATE REVIEWED:** 03/01/1995 **DATE REVISED:** 03/01/1995

**OBJECTIVE:** This principal objective of this project is to demonstrate the economic viability and widespread applicability of an innovative reservoir management and carbon dioxide (CO2) flood project development approach for improving CO2 flood project economics in shallow shelf carbonate reservoirs. The use of several horizontal injection wells drilled from a centralized location will reduce the number and cost of new injection wells, wellheads, and equipment; allow concentration of the surface reinjection facilities; and minimize the cost associated with the CO2 distribution system. It is anticipated that the proposed advanced technology will show improved CO2 sweep efficiency and will significantly reduce the capital investment required to implement a CO2 tertiary recovery project relative to conventional CO2 flood pattern developments using vertical injection wells. This technology will be readily transferred to the domestic oil industry.

**ID NUMBER:** DE-FC22-94BC14991

**B & R CODE:** AC1510100

**CONTRACTOR:** Phillips Petroleum Co.
Exploration & Production
**ADDR:** Permian Basin Region
4001 Penbrook
Odessa, TX 79762

**CONTRACT PERFORMANCE PERIOD:**
06/30/1994 to 01/02/2001
**PROGRAM:** Field Demonstrations
**RESEARCH AREA:** Class 2

**CONTRACT PROJECT MANAGER:**

**NAME:** D.R. Wier/L. Hallenbeck
**ADDR:** Phillips Petroleum Company
4001 Penbrook
Odessa, TX 79762
**PHONE:** (915) 368-1203
**FAX:** (915) 368-1554

**DOE PROGRAM MANAGER:**
**NAME:** Guido DeHoratiis
**COMMERCIAL:** (202) 586-7296

**DOE PROJECT MANAGER:**
**NAME:** Jerry F. Casteel
**LOCATION:** BPO
**COMMERCIAL:** (918) 337-4412

**PROJECT SITE:**
Odessa, TX
Ector County, TX

**SCHEDULED MILESTONES:**

| | |
|---|---|
| Complete update of injection well database | 03/95 |
| Complete advanced geostatistical studies | 06/95 |
| Complete core descriptions and petroleum studies | 07/95 |
| Complete geologic model | 09/95 |

| FUNDING (1000'S) | DOE | OTHER | CONTRACTOR | TOTAL |
|---|---|---|---|---|
| PRIOR FISCAL YRS | 881 | 0 | 1,191 | 2,072 |
| FISCAL YR 1995 | 0 | 0 | 0 | 0 |
| FUTURE FUNDS | 6,298 | 0 | 12,971 | 19,269 |
| TOTAL EST'D FUNDS | 7,179 | 0 | 14,162 | 21,341 |

**PROJECT DESCRIPTION:** The principal objective of this project is to demonstrate the economic viability and widespread applicability of an innovative reservoir management and carbon dioxide (CO2) flood project development approach for improving CO2 flood project economics in shallow shelf carbonate (SSC) reservoirs. This project shall demonstrate the economic viability of the advanced technology of developing a CO2 flood project utilizing multiple horizontal CO2 injection wells drilled in several directions from a central location. The use of several horizontal injection wells drilled from a centralized location will reduce the number and cost of new injection wells, wellheads, and equipment; allow concentration of the surface reinjection facilities; and minimize the cost associated with the CO2 sweep efficiency and will significantly reduce the capital investment required to implement a CO2 tertiary recovery project relative to conventional CO2 flood pattern developments using vertical injection wells. This technology will be readily transferred to the domestic oil industry and should open up CO2 flooding as an economically viable recovery technology option for smaller SSC reservoirs and for independent operators.

**PRESENT STATUS:** Project awarded June 1994.

**ACCOMPLISHMENTS:** 3-D seismic data has been processed and interpreted. The first and second reservoir characterization wells RC-1 and RC-2 have been drilled and tested.

**BACKGROUND:** The principle objective of this project is to demonstrate the economic viability and widespread applicability of a carbon dioxide (CO2) flood project utilizing multiple horizontal CO2 injection wells. It is anticipated that the proposed advanced technology will show improved CO2 sweep efficiency any will significantly reduce the capital investment required to implement a CO2 tertiary recovery project relative to conventional CO2 flood pattern developments.